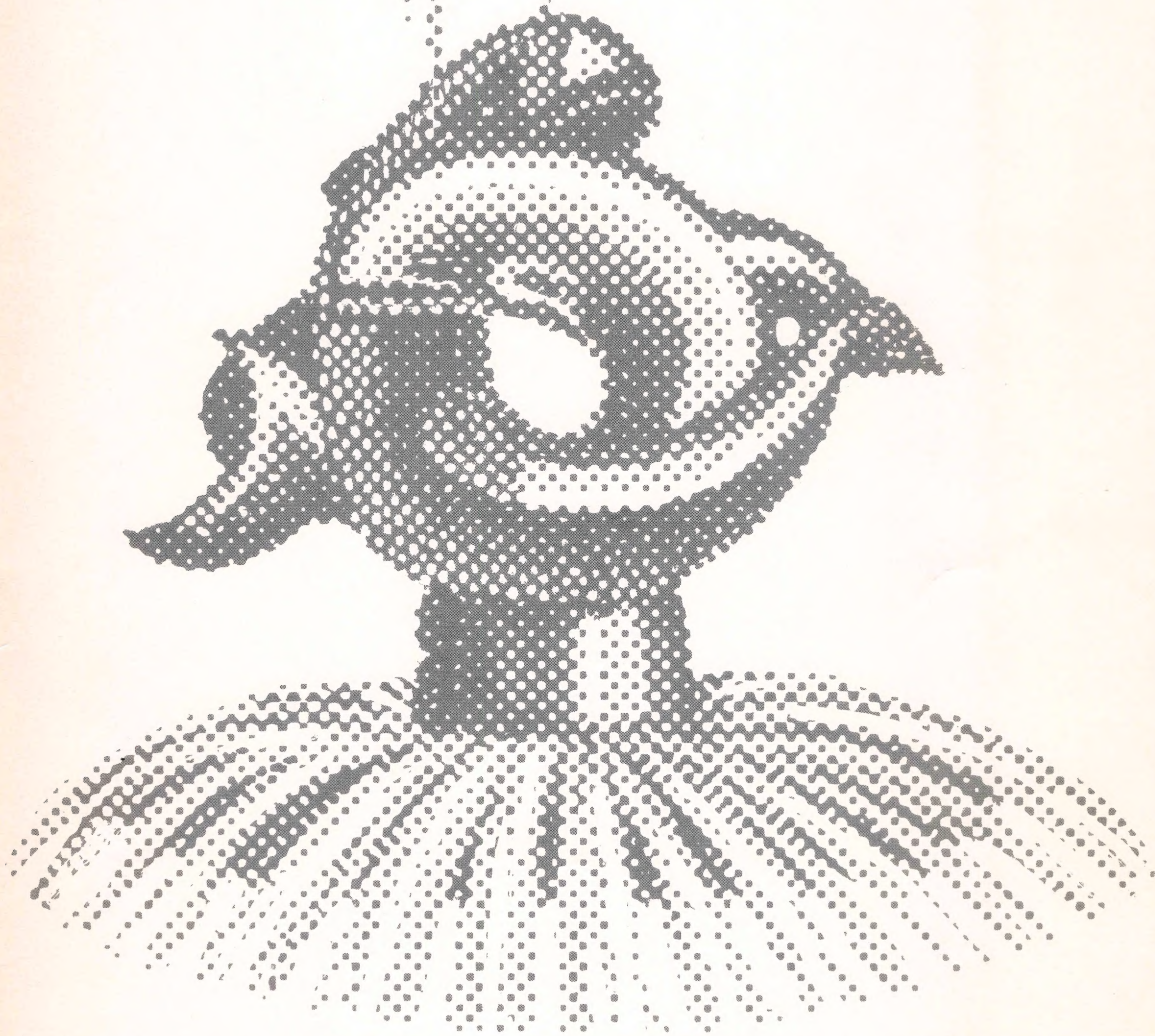


CALIFORNIA ACADEMY OF SCIENCES



ANNUAL REPORT 1963

TO THE MEMBERS AND FRIENDS OF THE CALIFORNIA ACADEMY OF SCIENCES

DURING its 110th year — we are happy to report — the Academy continued to follow its pattern of progress of recent years; but it still has many serious problems, largely due to inadequate funds. In some respects the past year has been one of consolidation of a base.

In the case of the Academy, the truism that no group is stronger than the people of whom it is composed is particularly valid. The Trustees have for many years past been greatly concerned with the low salary levels of the scientific and supporting staffs and the lack of a sound retirement plan — without which the problem of maintaining the caliber of its staff (and corresponding repute of the Academy among the scientific fraternity) in the long run could not help but be a losing battle.

Accordingly, the most significant event to report, in behalf of the Trustees, is the receipt of the first substantial bequests — unrestricted — since the bequest of James Lick in 1876, eighty-seven years ago! Those to whom we are grateful for their thoughtfulness and generosity are Dr. Sadie Patek and Miss Lucy Allyne. A substantial part of the Patek bequest was immediately utilized to establish and fund the long and badly needed retirement plan — an important milestone in the Academy's history. Income from the remainder of these bequests has been immediately budgeted to provide limited salary increases for the scientific and supporting staff.

Shortly after the close of the Academy's year, the planned retirement on September 30 of Dr. Robert C. Miller, our Director, and the appointment of Dr. George E. Lindsay as his successor was announced. During Dr. Miller's 25 years of loyal service as Director, the Academy has achieved substantial growth in scientific stature, in physical plant and in service to the public — recorded more completely elsewhere in this report. On October 1, Dr. Lindsay assumed his responsibilities as the Academy's Director.

I am sure all members of the Academy will be glad to know that the Academy continues to have the benefit of Dr. Miller's broad experience, because as he gave up his administrative responsibilities, he resumed, under the auspices of the Academy, his scientific work in invertebrate zoology and oceanography, for which he is internationally renowned.

The reopening on June 28th of the Steinhart Aquarium was of major significance. Attendance during the summer months totaled more than one and a half million persons — substantially more than that of any previous summer. Our fine modern Aquarium, however, has been forced, since its reopening, to limp along, with some exhibits still closed. This curtailment is due to the fact that the Academy, in accordance with the City Charter, is completely dependent upon the City and County of San Francisco for its funds to operate and maintain the Aquarium, and the initial City support for the 1963-64 fiscal year is currently inadequate. The Academy has urgently requested supplemental financial assistance from the City administration and hopes for early favorable action.

The Board of Trustees continues, as it always has, to accept full responsibility for the Academy's scientific program. This is entirely paid for from endowment income, grants, gifts, and dues. While, as referred to above, progress has been made in improving the salary scales and this past year in establishing a sound retirement program, additional funds are urgently needed:

1. to raise salaries of the scientific and supporting staffs so that they will be at least equal to the minimum paid personnel of similar qualifications and experience in other scientific institutions and leading universities in the Bay Area;
2. to increase budgets for curatorial equipment and supplies. Now for seven scientific departments, these total only \$14,000 and vary from a minimum of \$1300 to a maximum of \$2650 per department. As a result, much curatorial work is, by necessity, being deferred; and
3. to replace antiquated equipment for which no depreciation reserves exist.

The progress made to date in strengthening the Academy's scientific program is directly related to the support received from its members, public-spirited corporations, and foundations, which in increasing numbers are recognizing the value of the Academy's scientific work and achievements and are now annually budgeting to support them. Without such support, many of the Academy's basic activities would have had to be further curtailed if not discontinued altogether.

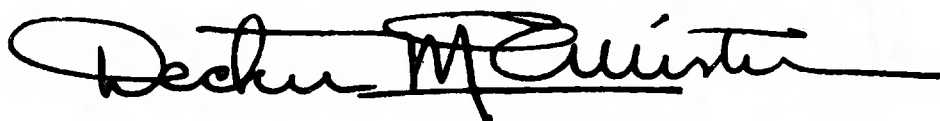
Three years ago, the post of Honorary Trustee was created. This is limited to Trustees who have rendered extraordinary service to the Academy. It is with great pleasure that I announce that Mr. T. S. Petersen, who has served the Academy since 1948, was elected an Honorary Trustee as of the expiration this fall of his 15 years as a Trustee.

At the same time, Mr. William R. Hewlett, Executive Vice President, Hewlett-Packard Company, was elected to succeed Mr. Petersen.

During the past year the Academy has been fortunate in obtaining as Trustees two other outstanding individuals: Mr. James B. Black, Jr., Partner, Lehman Bros., investment bankers, and Dr. Ralph Emerson, Professor of Botany, University of California.

The Academy continues to exist to serve the San Francisco Bay Area community, California, and the nation. Its accomplishments reflect the confidence expressed through the support it receives from many sources and the outstanding work performed by its loyal scientific and administrative personnel. To one and all, we express our sincere appreciation.

Respectfully submitted,



DECKER G. McALLISTER
Chairman, Board of Trustees

October 15, 1963



REPORT OF THE DIRECTOR

AT A RECENT meeting of the International Union of Geodesy and Geophysics held at the University of California in Berkeley, Dr. Jerome B. Wiesener, Special Advisor on Science to the President of the United States, expressed himself to the effect that the greatest shortcoming of our educational system is the failure of our schools to impart an understanding of science and a knowledge of the importance of such understanding to young people who must cope with the complexities of an increasingly scientific and technological civilization.

This is a fact of which scientists have for some decades been keenly if not always articulately aware. Dr. Wiesener has given it eloquent and authoritative expression.

Among the agencies that have been and are most active in attempting to remedy this situation are the museums of science. These museums have for more than half a century past devoted themselves to the study of special techniques for presenting science to the public in a graphic, understandable, and memorable way. At the present time, Dr. Albert E. Parr, Senior Scientist of the American Museum of Natural History, past President of the American Association of Museums, and dean of American museologists, is devoting

his entire time to the improvement of museum exhibits and to a study of their impact on the public.

Yet it is a frustrating thing to museum officials and to museum workers generally that museums are not always regarded as educational institutions. At least two important departments of the Federal Government do not so regard them under existing laws or administrative decisions. One of them, of all things, is the Department of Health, Education and Welfare! Another is the Department of Internal Revenue, which allows for donors to museums a tax deduction of twenty per cent of income instead of the thirty per cent allowed for religious and *educational* institutions. The House of Representatives has this year passed a bill to remedy this inequality, and it is hoped that the Senate will speedily do likewise.

Education is defined by government in terms of the number of formal classes conducted per day, per week or per year, without discriminative weighting of the amount, kind or quality of information imparted.

It seems worthwhile to inquire how successful museum programs are and have been in imparting information and, in particular—since Dr. Wiesener has mentioned it—in imparting a sense of the significance of science in modern life. Several museums in the

United States, including the California Academy of Sciences, have an average annual attendance exceeding two million persons a year. Is it possible that this vast throng really gains anything of importance from what may appear to be a perfunctory visit governed as much by accident or convenience as by any real interest or desire to be informed?

Museum people themselves have mingled feelings about this. Not infrequently they feel overwhelmed by the sheer numbers of visitors, and by questions that seem naive and to imply a lack of any genuine understanding. But there are moments of uplift and reward. One morning I walked into an exhibit hall soon after the museum had opened, and found a group of Mexican laborers clad in overalls and denim shirts surrounding the Foucault pendulum listening intently while one of their number, obviously a man of greater educational opportunity than the rest, explained to them in Spanish that this was a visible demonstration of the rotation of the earth. It was for me an unforgettable sight to observe the sense of awe and wonder on their faces as each experienced for himself an extension of the horizon of his private universe.

It may well be asked, is the expenditure of funds and effort that goes into the establishment and maintenance of museums justified by their influence on the adult population, at whatever level of previous education? My own answer would be yes. Anything is well worthwhile that broadens man's knowledge of his environment and his understanding of the world in which he lives. But there is an even more important purpose that museums serve; that is in the education of youth.

In the year just ended, 67,416 grade school, junior high and high school students, comprising 1608 classes,

visited the museum of the California Academy of Sciences in organized groups under the guidance of their teachers. (This does not include the classes visiting the Morrison Planetarium, which are separately listed.) In addition to those who come in classes are thousands more of children and young people who come to the museum under their own impetus or in the company of their parents or relatives. These it is impossible to count, but we believe they far exceed those who are counted (the classes with their teachers register, but the casual visitors do not). The casual visitors may be just as important as those who register—perhaps even more important, since their motivation is different.

It is not easy to evaluate the impact of museums upon young people. But there are certain indications that carry substantial weight. I have done a good deal of random sampling among professional scientists—physicians, teachers, and research workers—and have been pleasantly surprised by the number who gratefully acknowledge the museum as an important factor in turning their interest toward science.

Not unnaturally, a certain proportion of the young people who are attracted to and influenced by museums will themselves go into museum work. Of present heads of departments in the California Academy of Sciences, five have stated that they were strongly influenced by contact with science museums in their youth—two of them at the Academy itself.

To introduce a personal note—in this writing this, my concluding report after twenty-five years as Director of the Academy—it is perhaps not irrelevant to state that my early and continuing interest in the biological sciences was crystallized by my visits to the Carnegie Museum in Pittsburg before I was ten years



Crowds thronged the Aquarium following its reopening, June 28, 1963.

old. Now more than half a century later I am able to remember a number of the exhibits in considerable detail, and even a fair amount of the information I gleaned from the labels. My own experience is that museum exhibits really do something to and for the observer.

MUSEUM RESEARCH

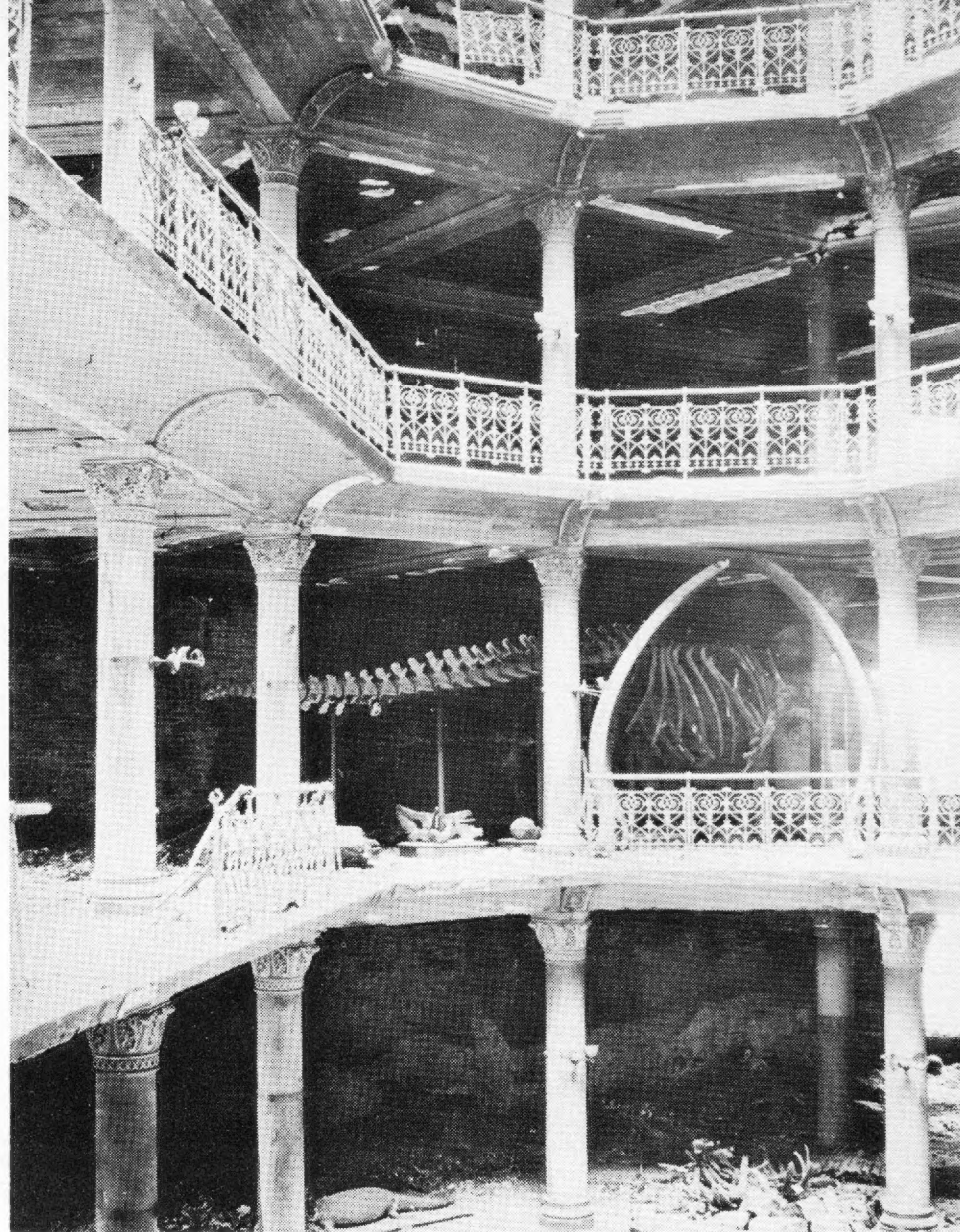
ONE OF THE inescapable functions of a museum is research. This is true even of small museums that have no recognized research program and no budget for research. An individual who turns toward museum work is naturally a person of inquiring mind, who has a genuine interest in the objects entrusted to his care and a desire to know as much as possible about them. I have never known a good museum curator who was not also an investigator, continually in quest of new knowledge.

In the larger museums research is of course formally recognized as a necessary and vital activity, and is budgeted for in the most generous way that the institution's resources can provide. A two-fold program of research and public education has become recognized as the proper function of museums throughout the world; and while I am commenting primarily on museums of science, the generalization applies as well to museums of art and of history.

I can avoid a long explanation of the reasons for this by the use of two quotations. An Englishman—who apparently had great hopes for America—James Smithson, on his death in 1829, bequeathed his entire and at that time rather substantial fortune to the United States of America for the founding of “an establishment for the increase and diffusion of knowledge among men.” There we learn, in a curiously eloquent statement of eleven words, the great purpose of museums. Increase of knowledge is research; diffusion of knowledge is education.

I would like to supplement the words of James Smithson's will with a statement of the recently retired Secretary of the Smithsonian Institution, Dr. Leonard Carmichael—a statement made privately but which he has given me permission to quote: “We regard our museum curators as being professors in what is ideally the greatest university in the world.” No museum—except possibly the museum of Alexandria, which was the greatest center of learning in the Ancient World—has ever fully realized this ideal. But every great museum aspires to it.

The California Academy of Sciences was founded in 1853 as an organization for scientific research and scientific publication. It maintained this character for more than two decades, including meetings for the reading of scientific papers, issuing its “Proceedings” and distributing them to learned societies throughout the world, accumulating a scientific library and research collections for the use of its members and of visiting scientists. In 1874 it opened its first public museum—in answer to a public need, for there was no



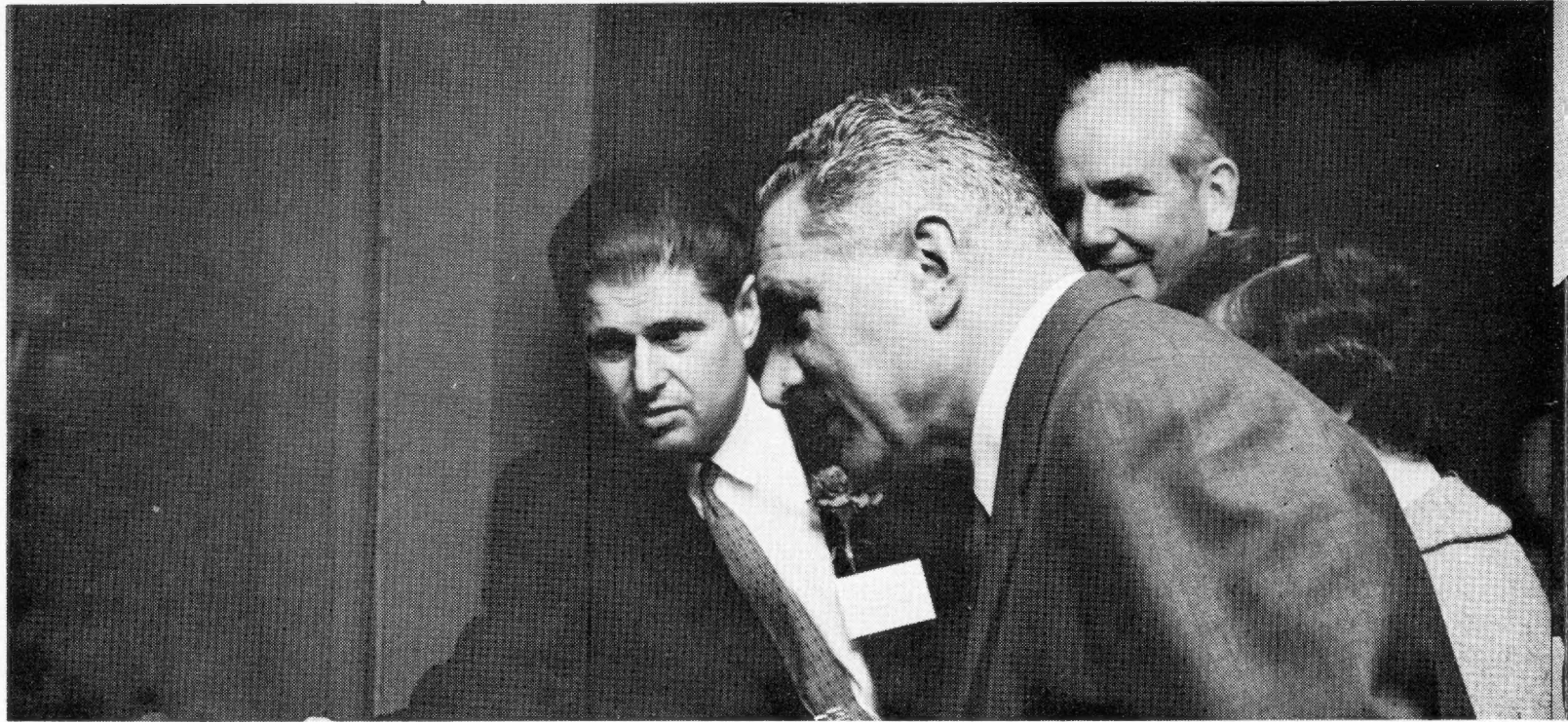
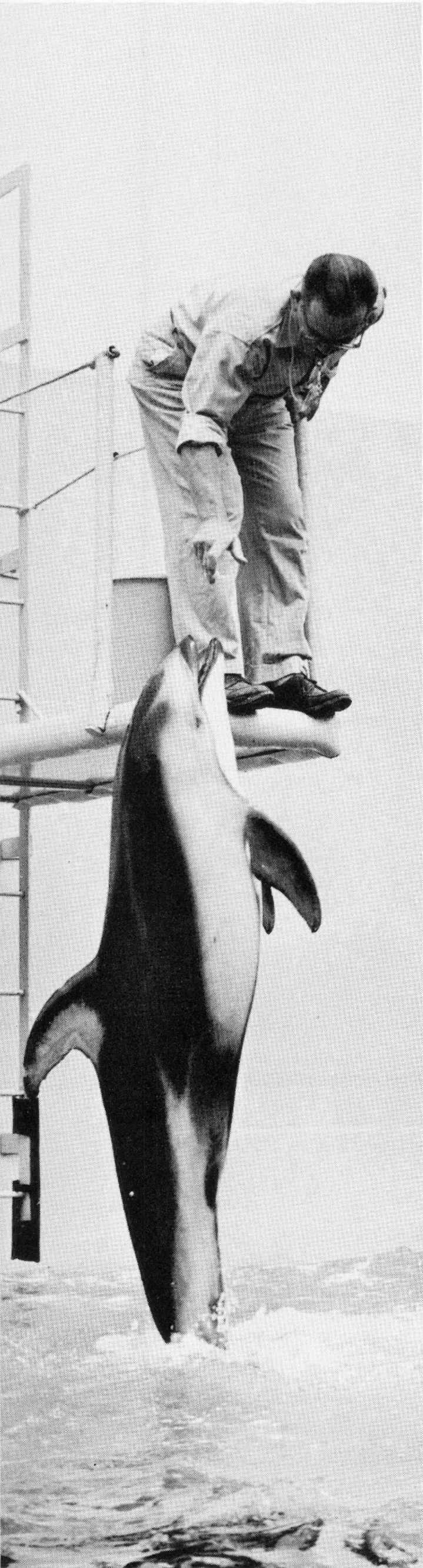
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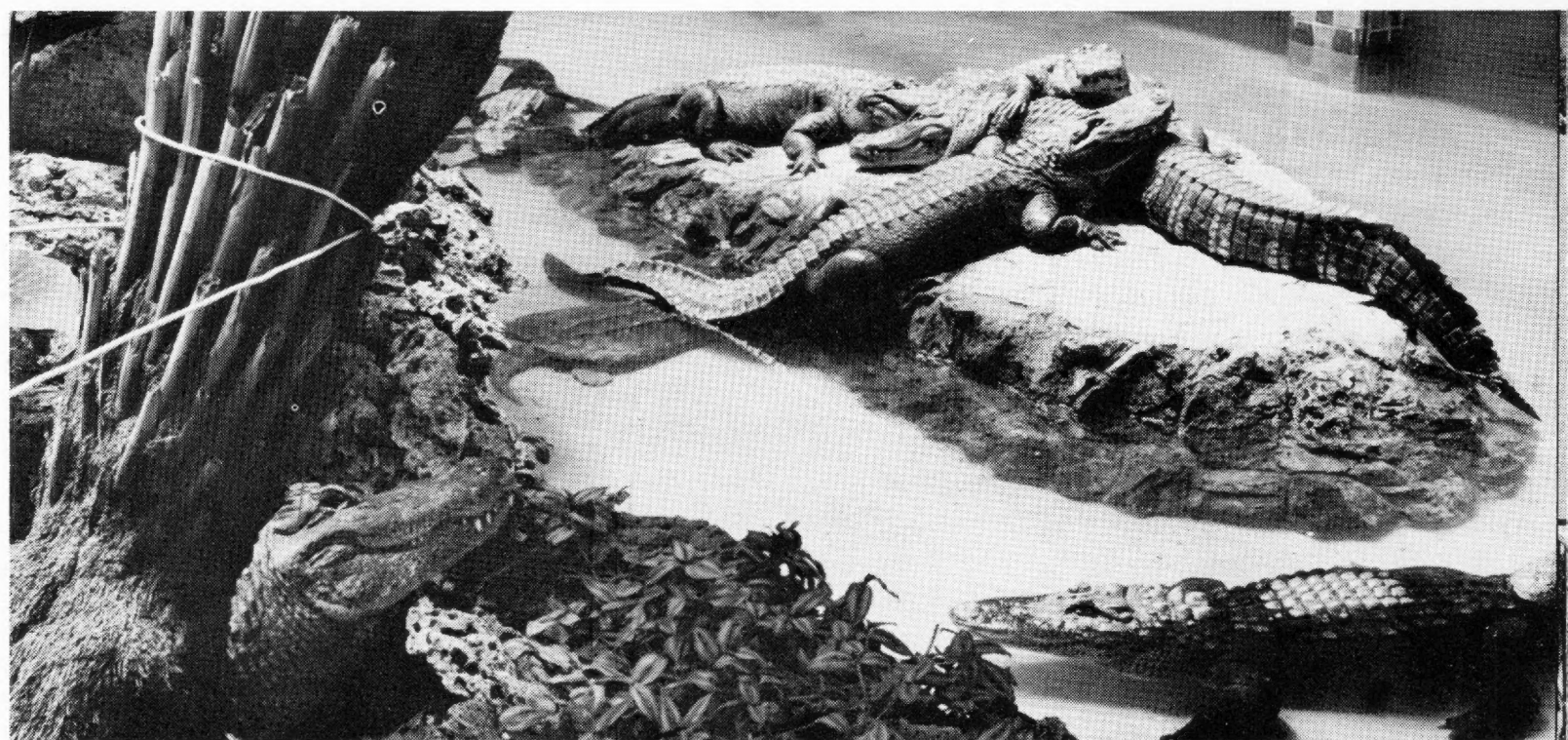
Top, interior of the Academy's Museum following the earthquake of April 18, 1906. The museum was then located on Market Street. Above, Steinhart Aquarium shortly after its original opening in 1923.

such institution on the burgeoning Pacific Coast. This established it in a dual capacity—an organization for scientific research and an institution for public education in science—a character it has maintained to the present day. In so doing it followed, as we have already seen, a pattern followed by all large public museums.

Until the early years of the present century the Academy was an entirely private institution—freely open to the public, but with its buildings on private land and its activities wholly supported by gifts, bequests, and the dues of members. This comfortable arrangement was rudely interrupted by the earthquake



Left, *educated dolphins are a particular attraction in the renovated Steinhart Aquarium. Top, Mayor George L. Christopher, with Dr. Earl S. Herald (left) and Mr. Decker G. McAllister, Chairman of the Academy's Board of Trustees, inspects a tank full of fish. Above, the renewed Aquarium—with fish, without people. Below, these alligators seem happy in their renovated quarters; the one at the left is smiling.*



and fire of 1906, which completely destroyed the Academy's buildings, museum collections and library, that had constituted for years prior to that time the largest and best scientific institution in the western United States.

Following this disaster, it appeared necessary—if the Academy was to carry out its earlier commitment to public education—to rely in some degree on tax support. Through an amendment to the San Francisco Charter, it was authorized to rebuild in Golden Gate Park, on land belonging to the City and County of San Francisco. A new museum was opened to the public in 1916, the Steinhart Aquarium was added in 1923, the Simson African Hall in 1931, and—with the Morrison Planetarium, the Morrison Auditorium, the Lovell White Hall, the Eastwood Hall of Botany, the Mailliard Library, and other additions—the Academy has again become one of the outstanding institutions of its type in the entire world. These buildings alone—all built with private funds—today represent a gift to the people of San Francisco of more than \$5 million.

Under present arrangements with the city of San Francisco, the Academy agrees to supply scientific management and direction, and support of the entire research program, while the city is asked to support the free public services of the Museum and the Aquarium. The city is at present providing substantially this degree of support.

At the suggestion of the Academy's Trustees, a study was recently made of how the Academy's research program has been faring in recent years, in comparison with total expenditures for all of the Academy's activities. Anyone acquainted with accounting practices will recognize that this has to be a somewhat arbitrary thing. In computing "research expenditures" we have included the salaries of curators of scientific departments, amounts allocated to scientific departmental budgets for field work and miscellaneous expenses, amounts derived from grants and contract research, amounts expended on the Library, which is indispensable to scientific work, and amounts expended on scientific publication—because scientific work that is not published is lost; it might as well not have been done. On the other hand, we have not included in the cost of "research expenditures" any administrative expenses or operational overhead, so that the figures given for research allocations are probably actually somewhat too low.

In 1938, out of total operating expenses of \$113,570, twenty-four per cent (\$27,392) was devoted to research. Ten years later (1948), with an operating budget of \$201,426, the amount allocated to research (\$54,908) was slightly over twenty-seven per cent. Fifteen years later, in the fiscal year just completed, the operating expenditures (for a considerably enlarged physical plant) had risen to \$1,016,607, while the expenditures pertaining to research had increased to \$367,258, or one third of the whole. Thus it is evident that over a period of twenty-five years, the research activities of the Academy have not only kept

pace with its expanding educational functions, but have shown a modest but continuing proportional increase.

FIELD AND LABORATORY ACTIVITIES

BOTANY

CURATOR John Thomas Howell continued his field work on the flora of the high Sierra, and collaborated with Miss Beatrice Howitt on the preparation of a flora of Monterey County. Associate Curator Elizabeth McClintock made a collecting trip in Arizona in April, 1963, participated in a field trip to the San Blas area of Mexico in December of 1962, and published in April, 1963, in conjunction with Dr. Mildred Mathias of the University of California at Los Angeles, *A Checklist of Woody Ornamentals of California*. This is available from the University of California Agricultural Extension. Mrs. Gladys L. Smith, Technical Assistant, completed the manuscript of a popular work on the flowers and ferns of Muir Woods, for publication in the fall of 1963, and also engaged in field work and the preparation of a manuscript on plants of the Echo Summit area of the Sierra Nevada.

Javier Penalosa, working in the Botany Department on an AAAS-Academy research award, completed and published his survey of the flora of the Tiburon peninsula in Marin County, California.

Lewis Rose continued his invaluable volunteer services to the department, as did Dr. Hans Leschke and others. During the year 21,180 specimens were added to the herbarium—18,265 by gift, 1097 by exchange, and 1918 from staff collections. The largest gift was received from Peter Rubtsoff, who gave the Academy his entire collection of California marsh plants and other specimens, totaling 11,198. Miss Marjorie Hart, a volunteer, has repackaged and filed about half of our entire collection of mosses, and is continuing this work. The department is indebted to other volunteers for services too numerous to mention.

ENTOMOLOGY

Curator Edward S. Ross returned on December 29, 1962, from an eighteen months' expedition to India, Pakistan, Nepal, Malaya, Thailand and Australia. He was accompanied by Mrs. Ross, their son Clark, and David Q. Cavagnaro, an entomology student from the University of California at Davis. The objective of the expedition was the collection of Southeast Asian and Australian Embiopetra, a little-known group of insects on which Dr. Ross has specialized for a number of years. He believes that he has obtained on this expedition more than 550 previously unknown species of this group. Additionally he brought back, as a special dividend, approximately 500,000 other insects, related arthropods and other small animals. The Embioptera were brought back alive and are being maintained at the Academy in cultures for further study.

In addition to the specimens brought back by Dr. Ross, the department accessioned 39,121 specimens

acquired by gift or by collection by the departmental or other Academy personnel. 56,539 specimens were loaned for research purposes during the year, indicating the importance of the Academy's entomological collections to research workers. Further, a number of visiting investigators spent from one or two days to several weeks at the Academy working on its insect collections. Associate Curator Hugh B. Leech and Assistant Curator C. Don MacNeill handled the affairs of the department during Dr. Ross's absence. Associate Curator Edward L. Kessel, in addition to serving as the efficient editor of the Academy's *Proceedings* and *Occasional Papers*, engaged in research and field work that took him through Canada and Alaska practically to the Arctic Circle.

The work of the department received substantial support from the National Science Foundation during the year.

GEOLOGY

Curator G Dallas Hanna completed and published a monograph entitled "West American Mollusks of the Genus *Conus*—II," illustrated with eleven handsome colored plates which he personally printed by the Eastman short-run process, a procedure on which he is the acknowledged expert. He also completed a four-year project on Tertiary microfossils of California, financed by the National Science Foundation, in which he had William W. Woernardt, a graduate student enrolled in the Department of Paleontology of the University of California, as assistant. He further served as a member of a working committee on Disposal of Radioactive Waste into Pacific Coastal Waters, whose report was published by the National Academy of Sciences-National Research Council in September, 1962.

Curator Leo G. Hertlein completed and published an important paper on the biogeography of Cocos Island, and continued his work on Clipperton Island, likewise his work on the fauna of the San Diego formation, which has been partially supported by the National Science Foundation.

Honorary Curator Charles W. Chesterman has continued his excellent care and arrangement of the Academy's valuable mineralogical collections. Research Associates Alan J. Galloway and Howell Gester have continued their important volunteer services.

ICHTHYOLOGY

Some 7000 specimens were accessioned by this department during the year, obtained partly by gift from various individuals and organizations, and partly by collecting by Curator W. I. Follett on nine field trips of longer or shorter duration. Of particular interest were several unusual sharks, a number of

aberrant flounders, the first known specimen from California of *Reinhardtius hippoglossoides*, and a specimen representing a northward extension of the known range of *Caulolatilus princeps anomalus*. Research work on the collection was continued by the Curator and by Associate Curator Lillian J. Dempster. Six papers were published during the year.

INVERTEBRATE ZOOLOGY

Following the death of Mrs. Olive MacFarland, the lifetime collection of Opisthobranch Mollusca assembled by her late husband, Dr. Frank Mace MacFarland, came to the Academy for preservation and research. This is an extremely valuable collection of many thousands of specimens. It forms the basis of a monograph to be published by the Academy with funds provided under the terms of Mrs. MacFarland's will.

Other noteworthy additions to the department were a large collection of invertebrates from the area of Todos Santos Bay to San Quentin Bay, Baja California, obtained by the late Col. Lee O. Miles and presented by Dr. Joel W. Hedgpeth, Director of the Pacific Marine Station; miscellaneous invertebrates from the Aleutian Islands relating to a study of the food of sea otters being made by the U. S. Fish and Wildlife Service; and three specimens of the Pacific Giant Squid presented by the California Department of Fish and Game. (This is the largest west coast invertebrate; two of these specimens are over nine feet long.)

The work of this department has been directly supervised by Associate Curator Allyn G. Smith. Invaluable volunteer services have been rendered by



Right, Dr. Edward S. Ross's traveling laboratory in a remote spot of India. Opposite page, Dr. Robert T. Orr and Dr. Thomas B. Poulter studying a Steller sea lion on Año Nuevo Island. (AP photo.) Far right, California sea lions and elephant seals on Año Nuevo Island.

Mrs. Sydney Johnnet, a graduate student at San Francisco State College.

ORNITHOLOGY AND MAMMALOLOGY

Study of marine mammals has continued apace in this department. Curator Robert T. Orr spent eighteen field days on Ano Nuevo Island, off the San Mateo coast. This interesting island is now known to be frequented by five species of marine mammals. Particular attention is being given to a striking increase over the last three years of the California sea lion and elephant seal populations. Dr. Thomas C. Poulter of Stanford Research Institute is collaborating in a study behavior and population dynamics of pinnipeds.

A specimen of Risso's Dolphin, or Grampus, obtained by Mrs. Jacqueline Schonewald, Technical Assistant in the department, is possibly the second record of this species for the Pacific coast of North America. Two specimens of dolphins of the genus *Steno*, donated by the California Department of Fish and Game, are the first representatives of this rare genus to be acquired by the Academy.

The ornithological field work being carried on in Mexico by J. Stuart Rowley under a joint arrangement between the Academy and the American Museum of Natural History has continued with rewarding results. Dr. William J. Hamilton has continued his highly interesting experiments on bird navigation, with support from the National Science Foundation and the Air Force Office of Research.

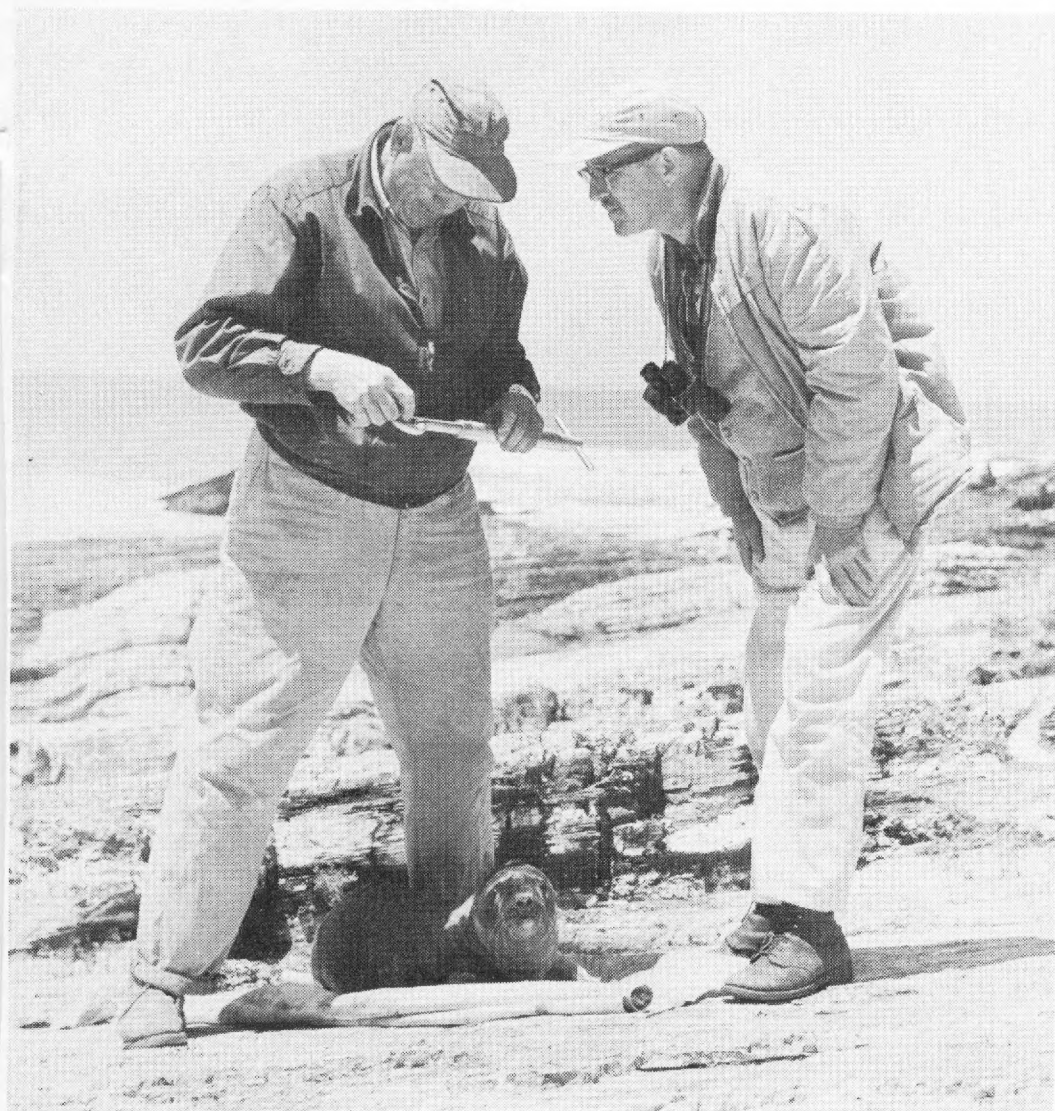
Dr. Orr has served as Acting Director of the Academy during periods when the Director was absent.

BAJA CALIFORNIA PROGRAM

Since 1958 the Academy has participated in a program for investigation of the natural history of Baja California supported by the Belvedere Scientific Fund. This has been a long range, coordinated program, involving personnel of the Academy, Stanford University, the University of California, The San Diego Museum of Natural History, and occasionally other institutions and organizations.

In April of 1963 the Director of the Academy participated in a survey of the region around Mulege and Concepcion Bay on the Gulf of California as an area for further scientific study. The survey group included such well-known authorities on natural history, wildlife and conservation as Carl Buchheister and Roger Tory Peterson of the National Audubon Society, Dr. George E. Lindsay, at that time director of the San Diego Museum of Natural History and currently director of the California Academy of Sciences, Dr. Joseph Wood Krutch, Mr. Paul Brooks, and Dr. Paul B. Sears. Special study was given to islands in the Gulf which constitute the principal if not the only nesting sites of Heerman's Gull and the Fairy Tern. The attempt was made to recommend a general research program covering this area, and to set up priorities.

In the autumn of 1962, Miss Annetta Carter of the University of California, accompanied by Miss Deborah Noack, made a pack trip into the Sierra Giganta region of Baja California under the auspices of the Academy, through a grant from the Belvedere Scientific Fund. This was a continuation of her earlier work in Baja California, and was coordinated with other projects supported by the Belvedere Fund.



THE J. W. MAILLIARD, JR., LIBRARY

THE LARGEST single accession to the Library in the past year was the library of Dr. Frank M. MacFarland, former President of the Academy, bequeathed by his widow Mrs. Olive MacFarland. It consists of long runs of the great German language biological and anatomical journals, along with his personal papers and letters, some relating to the history of the Academy.

Miss Louise Boyd, an Honorary Member of the Academy and former Trustee, presented a collection of valuable books of fine format. Among them is Rex Brasher's "Birds and Trees of North America." This well-known twelve-volume set is now extremely rare and hard to come by. Miss Boyd has given other valuable items, including a certificate of life membership in the Academy issued to her father John F. Boyd, on April 3, 1882.

Mr. Anson Herrick, whose hobby is fine book-binding, continued his generous work of binding monographs in Morocco cases. Mrs. James V. Campbell has carried on her invaluable volunteer services in organizing and arranging the special collections of personal papers in the Academy's archives.

The death of Ignatius McGuire, Associate Librarian, leaves a vacancy never to be filled. In the words of Miss Veronica Sexton, "The art with which he practised librarianship was almost unique. His influence on the Library will remain alive in its records from the earliest he compiled in 1915 to the last on the morning of April 16, 1963."

EDUCATIONAL SERVICES

EXHIBITS

PERMANENT exhibits in the Alice Eastwood Hall of Botany have moved toward completion with the installation of twelve new exhibits during the year. Nine new exhibits were placed in the Hall of Astronomy, including a black-light orrery constructed by Albert S. Getten and a heliostat constructed by Mr. Getten and Alvin Gundred, which picks up the sun's image at the top of the building and projects it on a screen in the exhibit hall.

Mr. Bruce A. Kock has continued his valued volunteer services in looking after the Dr. William Barclay Stephens Horological Collection and in procuring important new exhibits relating to astronomy, time, and time-keeping.

A new paleontological exhibit was installed across the hall from the entrance to the Morrison Auditorium. It features a large dinosaur footprint from a coal mine in Utah, a model of a Trachodon, a photograph of the fossilized skin pattern of that dinosaur, and a number of gastroliths, the polished stones that are believed to have been used by dinosaurs much as chickens use gravel for the trituration of their food.

As a result of an African expedition by Trustee Brooks Walker, Mr. and Mrs. Wellington Henderson,

and Mr. Jack Bradley, the Academy acquired a valued addition to its collection of African vertebrates, part of which is exhibited as a fine case of birds in the African Hall. Funds for the exhibit case were donated by Mrs. James van Loben Sels.

Installation of an attractive arrangement for food service in the Lovell White Hall has been welcomed as meeting a distinct public need, and has been combined with the use of wall space in this hall for changing exhibits. In all, twenty-nine temporary exhibits have been displayed in this and adjacent halls during the year. Further, the Academy served its usual role as host to the Bay Area Science Fair March 2 through April 3, featuring the carefully selected work of about three hundred students; this is the largest temporary exhibit that can be well imagined.

In the way of museum extension, a conservation exhibit entitled "Our California Heritage" was prepared and exhibited in the Palo Alto Library, the Menlo Park Library, the Oakland Nature Center, and at Fresno State College in connection with the annual meeting of the California Conservation Council.

PLANETARIUM

Growing attendance at the Alexander F. Morrison Planetarium testifies to the importance of this fine educational facility. The total attendance for the year of 159,921 exceeds that of the previous year by 3,763, and is in fact the highest in the Planetarium's ten-year history. Of this number, approximately one-half were children.

Additionally, more than 1,000 written requests for general information (letters and cards requesting literature, program schedules, reference materials, information about astronomical subjects, telescopes, astronomical societies, and observatories) and more than 2,000 letters regarding student programs were handled, aside from the staff's regular business correspondence. Public interest in the Planetarium and its program is unabated.

FILM LIBRARY AND PICTURE COLLECTION

The Academy's film library has been augmented, and there has been added a collection of kodachrome slides, black and white photographs, prints, and miscellaneous pictures dealing with scientific subjects. Johan Kooy, who is Art Director of *Pacific Discovery*, has devoted a great deal of time and effort to building up and cataloging this collection. Much of the progress in organizing the new material is due to the efforts of volunteer assistant Mrs. Mary Courtright; grateful acknowledgement is also given to Mrs. Dorothy Green and Miss Jill Carson for their assistance in processing collections.

Two notable gifts during the year have been the linoleum-block botanical prints of Mr. Henry Evans, and paintings of the weedy plants of San Francisco County by Mrs. Mary V. Roberts.



Top, Dr. Earl S. Herald and Dr. Carl S. Deutzel (center), Director of the Southwest Museum, on a "Science in Action" set, with a delegation of museum officials from around the world. Above, Academy Trustees Brooks Walker, Mrs. Joseph C. Fennelly, and Victor Bergeron (right) flank Dr. Robert C. Miller at the opening of the Academy Buffet. Below, The Academy Buffet. Right, one of the extremely popular "Exhibit-of-the-Month" series.



STUDENT SECTION

The Student Section has continued its fine program of providing young people who have an interest in science with the opportunity to pursue this interest under a type of supervision that combines discipline, education and encouragement, along with considerable latitude to pursue those avenues of scientific interest that most appeal to them. The present writer, who initiated this aspect of the Academy's program, has always insisted that it not be a classroom type of operation, but a group activity in which the students educate themselves and each other, under just enough supervision to prevent the program from going off in all directions. The success of this approach is perhaps indicated by the fact that several of the early participants (the program was initiated twenty-three years ago) are now professors in major universities.

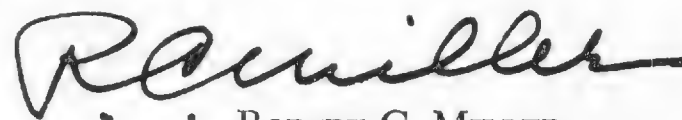
It has been a hope through the years that this project would appeal to some person of means as a way of perpetuating himself through an endowment to help develop the scientists of tomorrow. Such support has not been forthcoming, and the operation still proceeds on a shoestring—budget for the year just ended,

\$6200. But the program goes on—with or without funds—because of the interest of dedicated people.

CONCLUDING STATEMENT

IN CONCLUDING this, my last annual report, after twenty-five years of service as Director of the California Academy of Sciences, I would like to express to the members and friends of the Academy my appreciation of their unfailing assistance. The Academy has a long and honored tradition. Hopefully it is maintaining and will continue to maintain the vitality and pioneering spirit instilled by its founders 110 years ago.

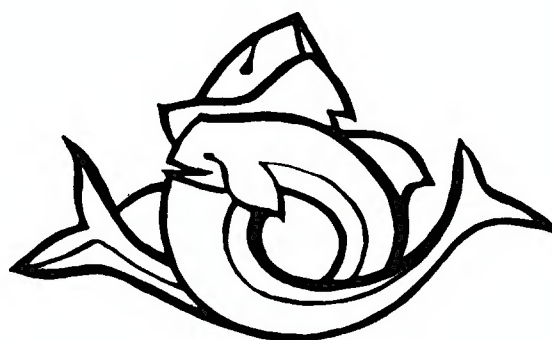
Nothing at all could have been accomplished in the past quarter-century without the enthusiasm of a loyal membership, the support of an active and vitally interested Board of Trustees, and the day-to-day cooperation of a devoted and hard-working staff, who are continually rendering services above and beyond the call of duty.



• ROBERT C. MILLER
Director

Dr. Robert C. Miller accepts a plaque from Manager Harold See of KRON-TV, in recognition of the 500th "Science in Action" Show.





CALIFORNIA ACADEMY OF SCIENCES

FUND BALANCE SHEETS

JUNE 30, 1963

ASSETS		LIABILITIES AND FUND BALANCES
GENERAL OPERATING FUNDS		
Cash, demand deposit	\$ 29,810	Accrued interest on note payable \$ 2,683
Receivables	39,399	Fund balances
Book and post card inventories, at cost	8,287	Unrestricted \$ 43,664
Unamortized lease cost (lease expires in 1984)	14,546	Restricted to special contracts 45,695
Total	<u>\$ 92,042</u>	Total <u>\$ 92,042</u>
ENDOWMENT AND SPECIAL PURPOSE FUNDS		
Cash, demand deposit	\$ 104,970	Note payable to an insurance company
Savings account deposits	35,341	5%, due October 11, 1964, secured
Investment fund, special purpose		by deed of trust to real property \$ 210,000
Securities at cost (market value,		Fund balances
\$254,477)	\$208,266	Restricted to plant additions \$ 41,517
Trust savings account	55,003	Restricted to other special uses
Investment fund, endowment	263,269	Permanent and expendable 353,332
Securities at cost (market value,		Endowment 1,185,655
\$716,852)	631,559	1,580,504
Trust savings account	129,182	
Rental property (pledged)		
Cost less depreciation	608,083	
Real estate under sales option	18,100	
Total	<u>\$1,790,504</u>	Total <u>\$1,790,504</u>
FIXED ASSETS		
Collections, library and equipment, at cost	\$ 928,364	Balance of fixed assets \$ 928,364

The accompanying notes to financial statements are an integral part of this statement.

California Academy of Sciences

We have examined the fund balance sheets of the California Academy of Sciences as at June 30, 1963, and the related statement of general operations and statement of changes in fund balances for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances, except that it was not practicable to extend the examination of contributions beyond accounting for the receipts as recorded.

In our opinion, the accompanying financial statements present fairly the financial position of the Academy at June 30, 1963, and the results of its operations for the year then ended in conformity with generally accepted accounting principles applied (except for the changes explained in note 2 to the financial statements) on a basis consistent with that of the preceding year.

L. H. PENNEY & Co.

August 5, 1963

CALIFORNIA ACADEMY OF SCIENCES

STATEMENT OF GENERAL OPERATIONS FOR THE YEAR ENDED JUNE 30, 1963

INCOME

General

Membership dues	\$ 30,406
Permanent endowment (Commercial Building rent)	106,761
Gifts, endowments and restricted funds receipts	150,440

Public operations

City and County of San Francisco

Steinhart Aquarium	215,853
Museum activities	129,491

Contributory activities

Planetarium and instrument shop	93,405
Television	138,034
Pacific discovery	7,501
Sundry sales	51,641
Other sources	23,825

Total \$ 947,357

EXPENDITURES

Public operations

Steinhart Aquarium	\$ 215,853
Museum activities	198,798

Contributory activities

Planetarium and instrument shop	49,329
Television	147,224
Pacific discovery	35,393
Cost of sundry sales	50,610

Scientific research and curatorial activities

Aquatic biology	34,920
Botany	25,065
Entomology	52,628
Geology	32,004
Herpetology	11,828
Ichthyology	9,344
Invertebrate zoology	1,997
Ornithology and mammalogy	18,094
Library	25,537
Special research	35,849

Administrative and general 60,059

Interest 12,075

Total \$1,016,607

Excess of expenditures over income before appropriations 69,250

Appropriation of corporation and other sponsorship funds 62,059

Excess of expenditures over income, after appropriations \$ 7,191

CALIFORNIA ACADEMY OF SCIENCES

NOTES TO FINANCIAL STATEMENTS

1. Buildings located in Golden Gate Park carried at \$2,354,362 are not included in fixed assets as title to buildings is vested in the City and County of San Francisco.
2. The Academy made extensive revisions in its account structure, and accordingly, in its financial statements, particularly with respect to classifications of fund balances and changes in such balances, including changes of general operations. These revisions were adopted during the year ended June 30, 1963.

CALIFORNIA ACADEMY OF SCIENCES

STATEMENT OF CHANGES IN FUND BALANCES FOR THE YEAR ENDED JUNE 30, 1963

	General Fund		Endowment and special purpose funds			Fixed assets	
	Unrestricted	Special contracts	Plant additions	Special uses	Endowment	Investment	Unexpended plant
Balance, June 30, 1962	\$50,855	\$70,008		\$324,642	\$ 795,332	\$712,528	\$35,414
Additions (deductions)							
Transfers							
Balance of Sundry Gift Fund at June 30, 1962		(24,523)		4,056	20,467		(35,414)
Unexpended Plant Fund			\$35,414		(210,000)	210,000	
Note payable to an insurance company . .							
Gifts and grants received			4,455	81,615	569,558		
Income from investments			989	10,192	20,519		
Net gain (loss) on sale of securities			673	23,176	(3,338)		
Other receipts				5,931			
Additions to library						5,836	
Expenditures for special purposes			(14)	(25,423)	(883)		
Appropriation of funds to general income							
Special purposes							
Hall of Botany							\$ 4,829
Columbia Foundation							753
Rosenberg Foundation							1,216
Trustees				(8,798)			2,000
1961-62 Corporate Sponsorship Fund . . .				(62,059)			\$23,586
1962-63 Corporate Sponsorship Fund . . .							38,473
Other					(6,000)		
Excess of operating expenditures over income and appropriations	(7,191)						
Excess of special contract income over expenditures and appropriations		210					
Net additions (deductions)	(7,191)	(24,313)	41,517	28,690	390,323	215,836	(35,414)
Balance, June 30, 1963	\$43,664	\$45,695	\$41,517	\$353,332	\$1,185,655	\$928,364	

The accompanying notes to financial statements are an integral part of this statement.

TRUSTEES*

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SIEMON W. MULLER, *Secretary*
KENNETH K. BECHTEL • S. D. BECHTEL, JR. • EUGENE D. BENNETT • V. J. BERGERON
JAMES B. BLACK, JR. • IAN CAMPBELL • E. MORRIS COX • RALPH EMERSON • MRS. JOSEPH C. FENNELLY
ALAN J. GALLOWAY • MARCO F. HELLMAN • FRANCIS C. HUTCHENS • WILSON MEYER
MRS. HENRY POTTER RUSSELL • H. P. STEWART • IRA L. WIGGINS • BRAYTON WILBUR
PAUL G. BRISLAWN, *Secretary to the Board*

HONORARY TRUSTEES*

FRANCIS P. FARQUHAR • DANIEL E. KOSHLAND • CHARLES PAGE • T. S. PETERSEN • DEAN WITTER

STAFF*

GEORGE E. LINDSAY, *Director*
J. BYRON WARNER, *Business Manager* • VASHTI F. HAWLEY, *Secretary*
ROBERT C. MILLER, *Senior Scientist*

Aquatic Biology (Steinhart Aquarium)

EARL S. HERALD, *Curator*
ROBERT P. DEMPSTER, *Associate Curator*
DAVID C. POWELL, *Assistant Curator*
J. RICHARD STAHKIN, *Research Associate*

Astronomy (and Morrison Planetarium)

MEARL F. CARSON, *Acting Curator*
CLAY P. BUTLER, *Research Associate*

Botany

JOHN THOMAS HOWELL, *Curator*
ELIZABETH McCLINTOCK, *Associate Curator*
GLADYS L. SMITH, *Technical Assistant*
MRS. JOHN HARDMAN, *Research Associate*
HANS LESCHKE, *Research Associate*
HENRY M. POLLARD, *Research Associate*
LEWIS S. ROSE, *Research Associate*
ERNEST C. TWISSELMANN, *Research Associate*

Entomology

EDWARD S. ROSS, *Curator*
EDWARD L. KESSEL, *Associate Curator*
HUGH B. LEECH, *Associate Curator*
C. DON MACNEILL, *Assistant Curator*
JOHN W. GREEN, *Scientific Assistant*
EDWARD O. ESSIG, *Research Associate*
KENNETH E. FRICK, *Research Associate*
HARRIET E. FRIZZELL, *Research Associate*
J. LINSLEY GRESSITT, *Research Associate*
E. GORTON LINSLEY, *Research Associate*
ROBERT L. USINGER, *Research Associate*
FRANCIS X. WILLIAMS, *Research Associate*

Exhibits

MEARL F. CARSON, *Curator*
TOSHIO ASAEDA, *Associate Curator*
CHARLES E. DORNBACH, *Senior Assistant*
ANSEL E. ADAMS, *Research Associate*

Geology

G DALLAS HANNA, *Curator of Geology*
LEO G. HERTLEIN, *Curator of Invertebrate Paleontology*
CHARLES W. CHESTERMAN, *Honorary Curator of Mineralogy*
CLIFFORD C. CHURCH, *Research Associate*
ALAN J. GALLOWAY, *Research Associate*

Herpetology

ALAN E. LEVITON, *Curator*
BENJAMIN W. GRUNBAUM, *Research Associate*
MALCOLM R. MILLER, *Research Associate*
GEORGE S. MYERS, *Research Associate*
LAWRENCE SWAN, *Research Associate*

Horology

BRUCE A. KOCK, *Honorary Curator*

Ichthyology

W. I. FOLLETT, *Curator*
LILLIAN DEMPSTER, *Associate Curator*
CARL L. HUBBS, *Research Associate*

Instrument Shop

ALVIN C. GUNDRED, *Superintendent*

Invertebrate Zoology

ROBERT C. MILLER, *Curator*
ALLYN G. SMITH, *Associate Curator*
FRANCIS P. FILICE, *Research Associate*
JOEL W. HEDGPETH, *Research Associate*
A. MYRA KEEN, *Research Associate*

Library

VERONICA J. SEXTON, *Librarian Emeritus*
RAY BRYAN, *Acting Librarian*
MARGARET T. CAIRNS, *Cataloguer*
MRS. JAMES V. CAMPBELL, *Library Associate*
MRS. FRANKLIN HOPKINS, *Library Associate*
MR. ANSON HERRICK, *Library Associate*
MRS. JOHN I. WALTER, *Library Associate*

Ornithology and Mammalogy

ROBERT T. ORR, *Curator*
JACQUELINE SCHONEWALD, *Technical Assistant*
ROBERT I. BOWMAN, *Research Associate*
ANATOLE S. LOUKASHIN, *Research Associate*
DORCAS E. MACCLINTOCK, *Research Associate*
J. DAN WEBSTER, *Research Associate*

Pacific Discovery

BRUCE FINSON, *Editor*
JOHAN KOOS, *Art Director*

Public Information

HAL RICHARDSON

Scientific Publications

EDWARD L. KESSEL, *Editor*

Student Section

MEARL F. CARSON, *Supervisor*
URBAIN KINET, *Assistant Supervisor*
DARREL MCKENZIE, *Assistant*

Television

DANIEL J. NORTON, *Executive Producer*
ERNEST R. ROOK, *Associate Producer*

*As of October 15, 1963